

Serial No. 10/707,130  
Filed: 11/21/2003  
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Examiner: Theresa T. Snider  
Group Art Unit: 1744

**Amendments to the Drawings**

Please approve for entry the attached Replacement Sheets that includes changes to Figure 3. This set of drawings replace the drawings originally filed with the application.

Attachment: Replacement Sheet – Figures 1-8

### **Remarks/Arguments**

By the present amendment, Fig. 3 of the drawings has been amended to correct a numbering error. The attached drawing sheets include a Replacement Sheet and an Annotated Sheet made in accordance with objections raised by the Examiner, as is explained more fully below.

Claims 1, 3-20 and 22-26 are pending in the application. By the present amendment, claims 1, 14 and 24 are amended and claims 12, 13, 22, 23 and 25 are been cancelled without prejudice. Claim 1 is amended to add the subject matter of canceled claims 22, 23 and 25, as well as to more clearly define the position of the squeegee as being rearwardly of and adjacent to the suction nozzle, as is clearly shown in Fig. 4 of the application as filed.

Applicants believe the amendments made herein add no new matter. It is further believed that no new issues of patentability have been raised by the amendments to the claims because the amended claims incorporate subject matter that was present in the claims at least prior to the issuance of the Final Office Action.

Any amendments to the claims which have been made in this amendment, and which have not been specifically noted to overcome a rejection based on prior art, should be considered to have been made for a purpose unrelated to patentability. Reconsideration and reexamination of the application is respectfully requested in view of the amendments and the following remarks.

### **Interview Summary**

The Applicants kindly thank Examiner Snider for the telephonic interview with the Applicants' representative on August 1, 2007. During the interview, the Applicants' representative and the Examiner discussed the pending claims in view of the rejections made in the latest Office Action, to which this paper is responsive. Specifically, claim 1 was discussed, including the meaning of the terms used therein and potential amendments to put claim 1 in condition for allowability. No agreement was reached during the interview.

### **Objections to the Drawings**

The drawings are objected to by the Examiner because Fig. 3 has two reference numerals “60” and two reference numerals “62” directed to different elements. Applicants have amended Fig. 3 to remove one “60” and one “62” directed to incorrect elements, leaving one “60” properly directed to a “working air outlet” and one “62” properly directed to a “working air inlet”. The attached drawing sheets include Replacement Sheets, for all of the drawings as required. Applicants submit that amendments overcome the objection.

### **Claim Rejections – 35 U.S.C. § 103**

Claims 1, 8-10 and 22-23 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,959,423 to Nakanishi et al. (“Nakanishi”) in view of U.S. Patent No. 5,548,511 to Bancroft (“Bancroft”). This rejection is respectfully traversed. Claims 22 and 23 have been canceled; therefore the rejection with respect to claims 22 and 23 is moot.

Nakanishi discloses a robot cleaner having a housing, a drive unit, a control unit, and a working unit. The working unit includes a dust collecting unit, a cleaning solution supply unit and a wiping member unit. The dust collecting unit has a suction nozzle, a dust collector and a suction source. The cleaning solution supply unit has a solution tank, and a cleaning solution distributor for distributing cleaning solution from the tank to a floor surface. The wiping units include rotatably driven cylindrical wiping members for wiping up cleaning solution from the floor surface. The wiping members comprise cylindrical sponge-like members which spread the solution released onto the floor and wipe the floor like a mop. A master control unit communicates with a microcomputer in the control unit of the robot to execute commands, such as moving the robot across the floor surface in a forward direction, to collect dust from the floor, to distribute liquid to the floor subsequent to collecting dust from the floor and, subsequent to distributing liquid onto the floor, wiping the thus distributed cleaning solution from the floor. Nakanishi does not disclose the intake of liquid by the suction nozzle.

Bancroft discloses a cleaning robot that can dispense cleaning solution onto a surface through applicator nozzles, a brush, a vacuum source, and a squeegee for collecting soiled cleaning fluid from the floor. The configuration of these elements on the cleaning robot is not shown or discussed in detail by Bancroft.

Claim 1, as amended, is directed to an extraction cleaning robot including, among other things, a squeegee positioned rearwardly of and adjacent to a suction nozzle for collecting dirt, debris and liquid from the surface to be cleaned for removal by suction through the suction nozzle, and a fluid distributor positioned forwardly of the suction nozzle for depositing a cleaning fluid on the surface to be cleaned and a dusting pad assembly positioned at a rearward portion of the base housing.

The alleged combination of Nakanishi and Bancroft is traversed. There is nothing in either of the two references that warrant the alleged combination. The Nakanishi reference is complete and needs nothing additional to accomplish its floor cleaning function. The addition of a squeegee to the Nakanishi robots performs no function unless it replaces an element of the Nakanishi combination of elements. Bancroft simply teaches a cleaning robot with a squeegee and therefore falls within the field of the Nakanishi disclosure, but that fact, by itself does not provide any reason or motivation for making the combination. Whereas, the elements of Nakanishi and Bancroft are well known in the floor cleaning art, that fact does not mean that any combination of known elements would be obvious and the Supreme Court in *KSR v Teleflex*, 127 S.Ct. 1727; 2007 U.S.LEXIS 4743; 82 U.S.P.Q (BNA) 1385, did not so hold. There is no reason to add a squeegee to the Nakanishi because to do so would be superfluous and would not be functional. The Nakanishi is fully operational as it is and needs no further elements to function. A squeegee is used to assist in the pick up of liquid from a bare floor surface. Nakanishi uses cylindrical sponge-like members to spread liquid and wipe up the cleaning fluid from the floor. There does not appear to be any need for adding a squeegee to Nakanishi to pick up the liquid because the cylindrical sponge-like members carry out this function. Where would it be added to pick up liquid? Behind the cylindrical sponge-like members? Or perhaps to replace the cylindrical sponge-like members? If so, there is no suction nozzle behind the cylindrical sponge-

like members or behind the cleaning solution distributor to pick up the liquid collected by the squeegee. The squeegee would not be functional there unless a suction nozzle and a suction source was added behind the cleaning solution distributor which would be an obvious solution to that problem, but not until the squeegee was added behind the cylindrical sponge-like members or behind the cleaning solution distributor. But why go to that trouble when there is no perceptive problem with the Nakanishi cleaning unit? Further, that substitution may well destroy the purpose of the Nakanishi machine because it would not provide the wiping function that is essential to the mopping function for hospital floors.

It cannot be said that it would be obvious to add a squeegee behind the suction nozzle of Nakanishi because there is no liquid there to pick up. In this configuration, the squeegee would not function to collect liquid, since liquid is distributed behind the suction nozzle and is wiped by the wiping members 121. Therefore the squeegee would be a superfluous addition to Nakanishi and would not perform the intended function of a squeegee, which is to aid in the removal of water from the floor surface. There is no reason to combine Nakanishi and Bancroft to arrive at the claimed invention, since the squeegee would be a useless addition to the robot cleaner of Nakanishi. Therefore, the alleged combination of Nakanishi and Bancroft is inappropriate and the alleged combination is not obvious.

Assuming, *arguendo*, that the combination of Nakanishi and Bancroft can be made, however untenably, the alleged combination of Nakanishi and Bancroft does not reach the Applicants' claimed invention. If the teachings of Nakanishi and Bancroft are somehow combined as suggested by the examiner, the squeegee of Bancroft would be added to the robot cleaner of Nakanishi adjacent the suction nozzle (which of course would be not functional). The alleged combination would not meet the limitations of claim 1. Neither Nakanishi nor Bancroft teaches a fluid distributor positioned forwardly of the suction nozzle for depositing a cleaning fluid on the surface to be cleaned, as required by claim 1. Nakanishi teaches a robot cleaner having a suction nozzle on one side of the cleaner and a wiping unit on the opposite side. The wiping unit includes a solution tank that releases solution onto the floor and wiping members that spread the released solution on the floor and that wipe the floor. There is no reason for

repositioning the solution tank near the suction nozzle, as the suction nozzle of Nakanishi is not used to pick up liquid; rather, it is used to pick up dust from the floor prior to mopping the floor with the cleaning solution and the cylindrical sponge-like members.

In addition, claim 1 calls for a dusting pad assembly positioned at a rearward portion of the base housing. This concept is not disclosed in the Examiner's alleged combination of Nakanishi and Bancroft. Neither Nakanishi nor Bancroft discloses a dusting pad assembly. The Nakanishi cylindrical sponge-like members do not function as a dusting pad assembly. Any housewife knows the difference between a dusting pad and a mop. Reduced to their simplest terms, claim 1 calls for a dusting pad and a mop is not a dusting pad.

Therefore, claim 1 is not obvious over the alleged combination of Nakanishi and Bancroft, as the alleged combination fails to teach a fluid distributor positioned forwardly of a suction nozzle and a dusting pad assembly positioned at a rearward portion of the base housing as called for in claim 1. Claims 3-11, 14-20, 24 and 26 are dependent on claim 1 and are also patentable over the alleged combination for at least the same reason as claim 1.

Claims 1, 8-11, 19-20, 22-23 and 26 are rejected under 35 U.S.C. 103 as being unpatentable over U.S. Patent No. 6,481,515 to Kirkpatrick et al. ("Kirkpatrick") in view of Nakanishi and Bancroft. This rejection is respectfully traversed. Claims 22 and 23 have been canceled but the limitations of these claims have been incorporated into claim 1..

Kirkpatrick discloses an autonomous mobile surface cleaning apparatus having a housing with collision detection sensors, a control module, and a drive mechanism. The housing has a surface treatment module, which can comprise a cleaning or a dust cloth, and additionally a container for storing cleaning fluid that is distributed to the cleaning cloth. Kirkpatrick does not teach a suction nozzle, or a squeegee, regardless of the configuration of these elements.

The alleged combination of Kirkpatrick, Nakanishi and Bancroft is traversed. Although all three references related to robotic floor cleaning apparatus, they are themselves all different in cleaning form and function. Whereas the Kirkpatrick reference is primarily concerned with buffing a bare floor surface, the Nakanishi reference is concerned with dry suction, cleaning solution deposition and mopping a floor and Bancroft appears to be concerned with conventional

bare floor cleaning with a liquid distributor and suction nozzle. There is no reason for various elements of one robotic floor treatment apparatus to be added to or substituted for elements of another of these robotic floor treatment machines. The Examiner's alleged combination is pure speculation and guided only by hindsight reconstruction of Applicants claims.

The uncombinability of Nakanishi and Bancroft has been discussed above and is equally applicable here. Adding the Nakanishi recovery tank and suction nozzle to Kirkpatrick as alleged by the Examiner is reasonable because there is no problem with dust pick up in Kirkpatrick. Kirkpatrick picks up dust with the dusting or cleaning pad. The addition of the Nakanishi recovery tank and suction nozzle to Kirkpatrick would be superfluous.

However, even if the alleged combination of Kirkpatrick, Nakanishi and Bancroft could be made, however untenably, it would still not reached Applicants' invention. Kirkpatrick does not remedy the shortcomings of Nakanishi and Bancroft with respect to claim 1; namely, the alleged combination would not have a squeegee positioned rearwardly of and adjacent to a suction nozzle or a fluid distributor positioned forwardly of a suction nozzle, as required by claim 1. Accordingly, claim 1 is patentable over the alleged combination of Kirkpatrick, Nakanishi and Bancroft. Claims 2, 8-11, and 19-20 depend from claim 1 and define over the alleged combination of Kirkpatrick and Nakanishi for the same reason as claim 1.

Claims 3, 12 and 24-25 stand rejected under 35 U.S.C §103(a) as being unpatentable over Kirkpatrick in view of Nakanishi and Bancroft, as applied to claim 2 above, and further in view of U.S. Patent Application Publication No. 2004/0031121 to Martin et al. ("Martin"). This rejection is respectfully traversed. Claims 12 and 25 have been canceled; therefore the rejection with respect to claims 12 and 25 is moot, although the limitations of claim 25 have been incorporated into claim 1.

Martin discloses a dust collector (e.g. a dust ruffle) for use in conjunction with a cleaning apparatus of the type having a lower head. The dust collector has a skirt portion of electet material suitable to essentially circumscribe the perimeter of the head, the skirt having means along an upper area of the skirt for mounting the skirt on the head.

The alleged combination of Martin with alleged combination of Kirkpatrick, Nakanishi and Bancroft is traversed. The uncombinability of Nakanishi and Bancroft and the uncombinability of Kirkpatrick, Nakanishi and Bancroft have been discussed above and are equally applicable here.

The addition of Martin does not remedy the shortcomings of the underlying alleged combination of Kirkpatrick, Nakanishi and Bancroft with respect to claim 1, from which claims 3 and 24 ultimately depend; namely Martin does not disclose a squeegee positioned rearwardly of and adjacent to a suction nozzle or a fluid distributor positioned forwardly of a suction nozzle, as required by claim 1. Accordingly, claims 3 and 24 define over the alleged combination of Kirkpatrick, Nakanishi, Bancroft and Martin at least in the same manner as claim 1.

Claims 4-7 and 13-16 stand rejected under 35 U.S.C §103(a) as being unpatentable over Kirkpatrick in view of Nakanishi, Bancroft and Martin as applied to claim 3 above, and further in view of U.S. Patent No. 6,446,302 to Kasper et al. ("Kasper"). The rejection is respectfully traversed. Claim 13 has been canceled, therefore the rejection with respect to claim 13 is moot.

The Kasper reference has been cited to show floor condition sensors in a floor cleaning machine.

The alleged combination of Kasper with alleged combination of Kirkpatrick, Nakanishi, Bancroft and Kasper is traversed. The uncombinability of Nakanishi and Bancroft and the uncombinability of Kirkpatrick, Nakanishi and Bancroft have been discussed above and are equally applicable here.

The addition of Kasper does not remedy the shortcomings of the underlying combination of Kirkpatrick, Nakanishi, Bancroft and Martin with respect to claim 1, from which claims 4-7 and 14-16 ultimately depend; namely Kasper does not disclose a squeegee positioned rearwardly of and adjacent to a suction nozzle or a fluid distributor positioned forwardly of a suction nozzle, as required by claim 1. Accordingly, claims 4-7 and 14-16 define over the alleged combination of Kirkpatrick, Nakanishi, Bancroft, Martin and Kasper in the same manner as claim 1.



Claims 17-18 stand rejected under 35 U.S.C §103(a) as being unpatentable over Kirkpatrick in view of Nakanishi and Bancroft, as applied to claim 1 above, and further in view of Kasper. The rejection is respectfully traversed.

The alleged combination of Kasper with alleged combination of Kirkpatrick, Nakanishi and Bancroft is traversed. The uncombinability of Nakanishi and Bancroft and the uncombinability of Kirkpatrick, Nakanishi and Bancroft have been discussed above and are equally applicable here.

As discussed above, the addition of Kasper does not remedy the shortcomings of the underlying combination of Kirkpatrick, Nakanishi and Bancroft with respect to claim 1, from which claims 17-18 ultimately depend; namely Kasper does not disclose a squeegee positioned rearwardly of and adjacent to a suction nozzle or a fluid distributor positioned forwardly of a suction nozzle, as required by claim 1. Accordingly, claim 17 and 18 define over the alleged combination of Kirkpatrick, Nakanishi, Bancroft and Kasper in the same manner as claim 1.

Claims 17-18 have also been rejected under 35 U.S.C §103(a) as being unpatentable over Nakanishi in view as applied to claim 1 above, and further in view of Kasper. This rejection is respectfully traversed.

The alleged combination of Kasper with Nakanishi is traversed. There does not appear to be any reason as to why the Kasper teaching would be added to the Nakanishi floor cleaner. Kasper appears to disclose carpet cleaners whereas Nakanishi discloses a bare floor cleaner.

However, even if the alleged combination of Nakanishi and Kasper were made, however untenably, it still would not reach Applicants' claimed invention. The alleged combination of Nakanishi and Kasper would simply provide Kasper's sensors in the Nakanishi floor cleaner. This combination would not have a squeegee positioned rearwardly of and adjacent to a suction nozzle or a fluid distributor positioned forwardly of a suction nozzle, as required by claim 1. Accordingly, claim 17 and 18 define over the alleged combination of Nakanishi and Kasper in the same manner as claim 1.

Claims 19-20 stand rejected under 35 U.S.C §103(a) as being unpatentable over Nakanishi and Bancroft, as applied to claim 1 above, and further in view of U.S. Patent No. 5,109,566 to Kobayashi et al. ("Kobayashi"). The rejection is respectfully traversed.

The Kobayashi has been cited to show proximity sensors in a cleaning robot.

The alleged combination of Nakanishi, Bancroft and Kobayashi is traversed. The uncombinability of Nakanishi and Bancroft has been discussed above and is equally applicable here. Further, there does not appear to be any reason that the Nakanishi floor cleaner would have proximity sensors.

However, even if the alleged combination of Nakanishi, Bancroft and Kobayashi, however untenable, it still would not reach Applicants' invention. The addition of Kobayashi does not remedy the shortcomings of Nakanishi and Bancroft with respect to claim 1; namely, Kobayashi does not disclose a squeegee positioned rearwardly of and adjacent to a suction nozzle or a fluid distributor positioned forwardly of a suction nozzle, as required by claim 1, from which claims 19-20 ultimately depend. Accordingly, claims 19-20 define over the alleged combination of Nakanishi, Bancroft and Kobayashi in the same manner as claim 1.

### **Double Patenting**

In the Office Action, the Examiner advised Applicants that claims 12 and 13 were substantial duplicates of claims 3 and 4, respectively, and that should claims 3 and 4 be found allowable, claims 12 and 13 would be objected to under 37 CFR 1.75. Accordingly, claims 12 and 13 have been canceled by the present amendment.

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In view of the foregoing remarks and amendments, it is submitted that all of the claims are in condition for allowance. Early notification of allowability is respectfully requested.

Respectfully submitted,

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Dated: August 3, 2007

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